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JOHN FITCH LANDON, M.D., Editor

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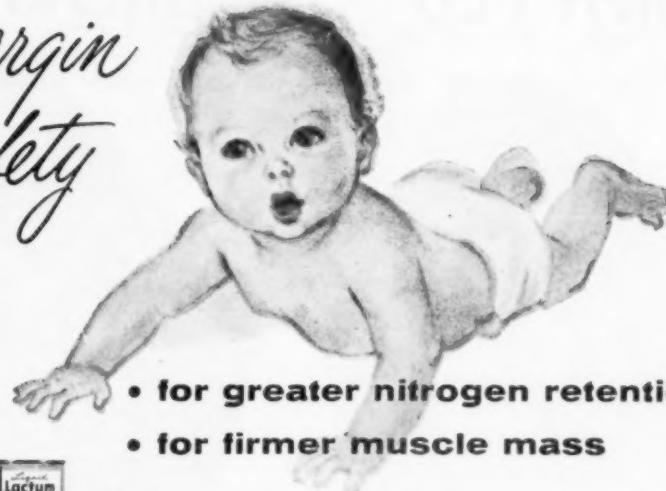
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- 2. Helmer, C. B., Grayzel, H. G., and Kramer, B.: Archives of Pediatrics 68:382, 1951.
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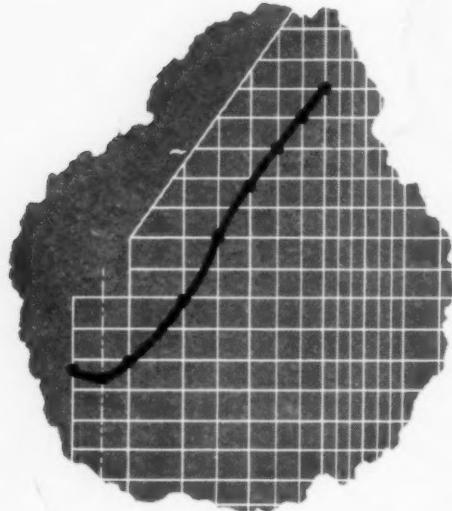
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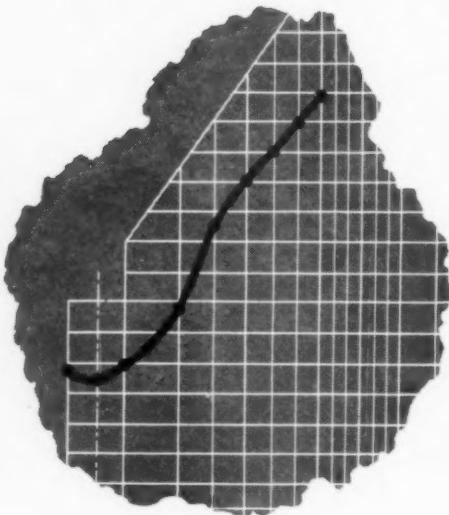
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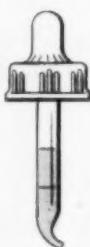
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EMOTIONAL PREDISPOSITIONS TO READING DIFFICULTIES*

RUDOLF DREIKURS, M.D.

Professor of Psychiatry, Chicago Medical School,
Chicago.

Reading difficulties are attributed to a variety of factors. Opinions vary greatly as to the significance of the numerous "causes" mentioned. In recent years the emphasis has shifted from a mechanistic-physiological to an emotional-sociological explanation of reading deficiencies.

A mechanistic-physiological orientation, prevailing until recently, led to the consideration of isolated physiological factors. It was assumed that "reading readiness" depends on the cerebral development of the child; consequently, it was suggested that, for some children, reading be postponed to a later age. Since boys appear to have more difficulties learning to read, it was assumed that they reach reading readiness at a later age than girls, because of their slower development. Many other physiological factors were considered as causes of reading difficulties, such as inadequate motor coordination, particularly of the eyes; handedness; eyedness; visual and auditory acuity, strephosymbolia, speech defects, visual abnormalities, etc. Intelligence was correlated to reading readiness or retardation. Obviously, mental retardation can adversely affect the ability to read; but we have unquestionable proof that children with a low I. Q. can still learn to read if properly instructed. The fallacy of stressing the intellectual capacity becomes most obvious when we recognize the relatively large number of non-readers or

*Read at the Thirtieth Annual Convention of the International Council for Exceptional Children, Omaha, Nebraska, May 1952.

retarded readers with superior intelligence. One cannot doubt that all these and other physiological deficiencies may have a deterrent influence on the learning process; however, their significance can only be determined within the total picture of each child.

Mechanistic-physiological concepts may lead to an under-estimation of the emotional factors responsible for reading difficulties. There is much difference of opinion and uncertainty concerning the influence of personality deviation upon reading disability. In a recent survey (Traxler¹) of various educational institutions, public and private schools, colleges and clinics, about 17 per cent believed that personality deviation caused reading disability in less than 10 per cent of the cases; 25 per cent considered this factor to amount to 50-90 per cent, and 5 per cent thought that personality difficulty was a causative factor in 100 per cent of the cases. This shows the amount of uncertainty and the difference of opinion concerning the role that personality maladjustment plays in reading disability. Our own experiences indicate that reading difficulties, like most academic deficiencies, express in most cases an emotional, and particularly a social maladjustment of the child. The tendency to blame physiological deficiencies can be regarded in many instances as an alibi, both for the child who apparently "cannot" learn to read, despite his best efforts, and for the teacher who feels stifled in her efforts to teach the child.

To understand a child in his functions and performances, one must keep in mind that man is a social animal, a *zoon politicon* (Aristotle). Since he functions entirely within a social atmosphere, all his functions and performances have social significance. To understand a child requires comprehension of his total personality within his social setting. It is impossible to blame any one factor in the child's make-up for his behavior or deficiencies. The effects of handicaps, including severe physical disability, differ with each child, according to his total personality pattern.² Without comprehension of his personality pattern, the "causes" of his dysfunction cannot be determined. This may be distressing to the teacher who feels unprepared and unable to evaluate the structure of the total personality with its deeper dynamics. But corrective measures require knowledge of the underlying causes; otherwise the results remain unduly slow and far from being satisfactory.

We can distinguish three groups of functions which are disturbed in a non-reader or in a child who is unduly slow in his reading development.

First, he obviously displays a *disability*. His accomplishments are far below par. He cannot do what other children of his age group can. The emotional reactions and personality deficiencies of children with reading difficulty are, therefore, often similar to those found in children with other dysfunctions and insufficient accomplishments.

Second, the retarded reader often has *poor working habits*. In many cases he makes great efforts but they are spotty, sporadic and erratic. Such poor working habits may result from inadequate training and indicate specific shortcomings.

Third, the retarded reader has *difficulties in cooperating* with others, particularly with adults. He often displays disdain and defiance of order. Despite personal affection which he may have for the educator, he is unable or unwilling to follow directions, to accept responsibility, to do as he is told. The reading difficulty appears then as merely one facet of disturbed interpersonal relationships, resulting in social maladjustment and emotional disturbances.

Our own observations would indicate that reading difficulties are increasing. We are fully aware that this opinion, shared by many, is refuted by others. Unfortunately, we have no national surveys indicating the present number of children with reading difficulties, nor do we know the percentage of past years. For this reason we never will be able to determine whether the present percentage is higher or the same as it was years ago. Educators are certainly becoming more aware of reading difficulties, and this awareness has increased throughout the years. While the increase of special remedial programs for retarded readers does not necessarily indicate an increase of children who need special help, one can safely assume some correlation between the existence of difficulties and their recognition by the educators. For this reason it may be significant that, of the institutions surveyed by Traxler, only 3 per cent had a corrective program prior to 1930, 14 per cent during 1931-41, as contrasted to 70 per cent after 1941. Such increase in special remedial services would hardly be possible had the numbers of children who need special help not increased. At

any rate, we have definite indications that the number of poor or retarded readers in this country is much higher than in Europe—estimated as being 10-15 per cent* of the total school population in the United States as contrasted to 4 per cent reported from Sweden.

It is evident from these figures that reading difficulties cannot be accounted for by deficiencies of individual children alone. Certainly, these deficiencies have to be understood and corrected in a remedial process designed for the individual child. But if such a large number of children show the same difficulty in learning to read, and, furthermore, if we have reason to assume that their number is increasing and that the reports of European countries about considerably less frequency of such cases are correct, then we must assume the existence of social and cultural factors which may contribute to the incident of reading retardation. These factors can hardly affect the constitutional and physiological development of our generation of children; if they have any effect, then only on the emotional and social development of children. Our observations would indicate that such is actually the case.

Increasing reading disability is only one of many expressions of the difficulties which our present generation of adults has with their children. It almost seems that *homo sapiens* of the twentieth century has lost a knowledge which all other creatures on this earth possess, namely, the knowledge of how to raise their young. Parents realize their predicament and ask for help. Teachers, too, are often dissatisfied with their ability to stimulate academic progress and social conformity in the classroom. They are groping for new approaches and better understanding. As Maria Montessori pointed out in one of the last papers she published before her death,⁴ the whole generation of adults is at war with the whole generation of children. Individual difficulties have to be understood in the light of a cultural predicament in which we all find ourselves.

It seems that at the root of the problem lies the change from an autocratic to a democratic social organization, which makes our time a transitional period between two cultures. A new type of human relationship emerges, one of *equality*. This new and fast

*This estimate will probably have to be raised. Dr. George E. Park⁵, of the Dyslexia Memorial Institute, estimates that from 15 to 25 per cent of our school children have some difficulties in learning to read. Our recent survey in a Middle Western town showed that of the total student body in the eighth grade, 40 per cent were reading two or more years below their age level.

development of social equality makes the methods previously used in the rearing of children obsolete and requires new values and attitudes in social relationships. Neither parents nor teachers can rely any longer on the traditional methods of the past, and the new and more fitting methods are as yet not sufficiently known. We have not learned yet to live with each other as equals, and find this particularly difficult with our children.

The three aspects of reading difficulties mentioned before, namely, the development of a disability, of poor working habits, and of a disturbance in the child's cooperation with adults can well be understood in the light of the experiences which many of these children have had at home and in school.

1. A disability does not always indicate incapacity; in most cases the child is not using his potential abilities and inner resources. What hinders him from using them is his lack of self-confidence, of faith in himself and his abilities. *He is discouraged.* The general discouragement of our children as to abilities and accomplishments deserves our attention. A closer scrutiny reveals that a great many educational methods imply discouragement; most children, are during their formative years, exposed to a sequence of discouraging experiences, mostly through their parents. Any remedial approach must be gauged primarily toward the elimination of previous discouragement, and any preventive program must take into account the tendency of parents and teachers to discourage children and must counteract it.

The tendency to discourage children is the result of our inability to treat them as equals. We underestimate their strength and ability, and consequently overprotect them on the one hand, and scold and humiliate them on the other. Children are often deprived of the necessary experiences of their own strength. Their receptivity to discouragement is enhanced by a cultural concern with prestige and personal glory. The child is made to believe that he is not good enough as he is; he should be better than others, or at least better than he is. Clinical experience has proven that ability to perform does not increase with ambition, but often enough becomes jeopardized by it. Overambition leads to easy withdrawal when excellence is impossible. Many children with "disabilities" are discouraged, overambitious children, who gave up because excellence appeared impossible.

any rate, we have definite indications that the number of poor or retarded readers in this country is much higher than in Europe—estimated as being 10-15 per cent* of the total school population in the United States as contrasted to 4 per cent reported from Sweden.

It is evident from these figures that reading difficulties cannot be accounted for by deficiencies of individual children alone. Certainly, these deficiencies have to be understood and corrected in a remedial process designed for the individual child. But if such a large number of children show the same difficulty in learning to read, and, furthermore, if we have reason to assume that their number is increasing and that the reports of European countries about considerably less frequency of such cases are correct, then we must assume the existence of social and cultural factors which may contribute to the incident of reading retardation. These factors can hardly affect the constitutional and physiological development of our generation of children; if they have any effect, then only on the emotional and social development of children. Our observations would indicate that such is actually the case.

Increasing reading disability is only one of many expressions of the difficulties which our present generation of adults has with their children. It almost seems that *homo sapiens* of the twentieth century has lost a knowledge which all other creatures on this earth possess, namely, the knowledge of how to raise their young. Parents realize their predicament and ask for help. Teachers, too, are often dissatisfied with their ability to stimulate academic progress and social conformity in the classroom. They are groping for new approaches and better understanding. As Maria Montessori pointed out in one of the last papers she published before her death,⁴ the whole generation of adults is at war with the whole generation of children. Individual difficulties have to be understood in the light of a cultural predicament in which we all find ourselves.

It seems that at the root of the problem lies the change from an autocratic to a democratic social organization, which makes our time a transitional period between two cultures. A new type of human relationship emerges, one of *equality*. This new and fast

*This estimate will probably have to be raised. Dr. George E. Park⁵, of the Dyslexia Memorial Institute, estimates that from 15 to 25 per cent of our school children have some difficulties in learning to read. Our recent survey in a Middle Western town showed that of the total student body in the eighth grade, 40 per cent were reading two or more years below their age level.

development of social equality makes the methods previously used in the rearing of children obsolete and requires new values and attitudes in social relationships. Neither parents nor teachers can rely any longer on the traditional methods of the past, and the new and more fitting methods are as yet not sufficiently known. We have not learned yet to live with each other as equals, and find this particularly difficult with our children.

The three aspects of reading difficulties mentioned before, namely, the development of a disability, of poor working habits, and of a disturbance in the child's cooperation with adults can well be understood in the light of the experiences which many of these children have had at home and in school.

1. A disability does not always indicate incapacity; in most cases the child is not using his potential abilities and inner resources. What hinders him from using them is his lack of self-confidence, of faith in himself and his abilities. *He is discouraged.* The general discouragement of our children as to abilities and accomplishments deserves our attention. A closer scrutiny reveals that a great many educational methods imply discouragement; most children, are during their formative years, exposed to a sequence of discouraging experiences, mostly through their parents. Any remedial approach must be gauged primarily toward the elimination of previous discouragement, and any preventive program must take into account the tendency of parents and teachers to discourage children and must counteract it.

The tendency to discourage children is the result of our inability to treat them as equals. We underestimate their strength and ability, and consequently overprotect them on the one hand, and scold and humiliate them on the other. Children are often deprived of the necessary experiences of their own strength. Their receptivity to discouragement is enhanced by a cultural concern with prestige and personal glory. The child is made to believe that he is not good enough as he is; he should be better than others, or at least better than he is. Clinical experience has proven that ability to perform does not increase with ambition, but often enough becomes jeopardized by it. Overambition leads to easy withdrawal when excellence is impossible. Many children with "disabilities" are discouraged, overambitious children, who gave up because excellence appeared impossible.

2. Many academic deficiencies are the result of poor working habits. Children who cannot "apply" themselves have a short interest span, are restless and flighty, are not trained to work. They refuse to be useful in a society where everything is done for them. We are raising a whole generation of children who try to get as much as possible by doing as little as possible. They consider work as an imposition, and not as a source of pleasure and satisfaction. When they are small, they are prevented from being useful to themselves and others by overprotective parents who are afraid they may injure themselves or be destructive. Many children never learn to be useful around the house; many carry distaste against work within the family to *all* work, because they resent any obligation to do anything except play and have fun. Boys are encouraged in masculine concepts, and consequently shun activities which may be considered "sissy stuff," such as cleanliness, domestic assistance or even learning. This mistaken masculine ideal, and not slower cerebral or muscular development, may be the reason why boys appear to have a later reading readiness and form the larger percentage of poor readers.

3. The child's difficulties in school, particularly in regard to reading, is often an expression of his antagonism against school and learning, of his reluctance to cooperate with adults and accept their demands. The pressure from without is no longer effective in a democratic atmosphere, and the child has little motivation from within to work and to do what has become distasteful. In a democratic atmosphere the teacher can no longer *demand* and enforce the child's cooperation, he must *stimulate* it. But the child's mistaken concept of order and cooperation often defeats a teacher's best efforts.

The concept of order constitutes one of the most vexing problems in democratic education. In an autocracy, freedom and order are mutually exclusive; "cooperation" means submission to the demands of an authority. In a democracy, freedom and order are synonymous; one cannot exist without the other. While freedom of the individual disrupts an autocratic order and, therefore, cannot be tolerated, the order in a democracy requires self-determination and inner freedom for each. Disposing of an autocratic tradition creates considerable confusion. Mere avoidance of autocratic approaches does not establish democracy, but anarchy. Permitting children to run wild in order to "express themselves" or to "get

rid of their hostility," does not teach them order; but neither does imposition or suppression which only incurs rebellion and defiance. Rearing children in freedom and at the same time in respect for the necessary order requires new methods.

Reading and writing are the two subjects most affected by a child's reluctance to accept rules and to conform to them. Interestingly enough, our case studies indicate that no other subject is as closely related to order. Arithmetic, for instance, is obviously also based on rule and order; but the child is less impressed with the aspect of order in arithmetic than with the need to solve his own problems, and has difficulties in this subject only if he feels unable to solve them. On the other hand, spelling is most difficult for a child not trained to observe order. He spells "as the spirit moves him," the same word once in this way, then in another. Poor script also reflects defiance of order, and poor reading is the strongest rebuff to the order of adults.

A teacher faced with an uncooperative or openly defiant child may be inclined to increase her pressure in order to "teach him." Such outside pressure intensifies the child's rebellion, be it expressed openly or merely by passive resistance to the teacher's efforts. Most remedial teachers encounter both types of rebellion. "Making" the child repeat his assignment until he finally may learn it is not designed to get better cooperation from him, nor does it stimulate adequate motivation. Without the promotion of a more cooperative attitude in the child, his deficiencies cannot be resolved.

So far we have discussed cultural social factors affecting the child's functioning. Remedial efforts will have to take them into consideration. However, each child has his individual personality problems preventing him from learning to read. The teacher who has no insight into the individual dynamics of the child, can hardly cope effectively with his problems and difficulties.

There are different ways to understand a child. Some teachers do it without the benefit of any specific scientific orientation; they have an almost instinctive understanding of each child, through their empathy, their "feeling" for him. Autocratically oriented teachers may consider the child's personality as inherited; such fatalistic acceptance of constitutional factors has led to an over-emphasis of the I.Q. Others are trained in the Behavioristic approach, according to which all behavior is a stimulus-response reflex. They may try to substitute better stimulation for the old

poor ones, but they can hardly understand all the past stimulations to which the child has been exposed. In recent years the instinctual-biological theories of Freud's psychoanalysis made their imprint on psychological evaluation of children. They induce teachers not to "frustrate" or "repress" the child any further. In this way they help to promote better relationships between teachers and children, but fail to provide the teacher with a practical scheme for the understanding of the individual child.

Recently the socio-teleological approach to human dynamics, first developed by Alfred Adler⁵ and then followed by the Neo-Freudians (like Karen Horney, Eric Fromm, Harry Stack-Sullivan, and more recently Alexander and French) gained wider recognition on the American scene. This approach promises greater assistance to the teacher, supplying her with practical methods, applicable to the every-day situation in school. The teleological approach, recognizing all human behavior as being goal-directed, may be particularly helpful; it permits the recognition of the *purpose* of the child's deficiency or of his disturbing behavior. All disturbing behavior has a goal and purpose; it reflects a mistaken concept of the child about himself, an erroneous and, therefore, defective approach to others. The technique of investigating the child's goals is relatively simple, and can and should be acquired by each teacher. The teacher who understands the child's goal has access to his total personality, his inner motivations. It can be expected that teachers will be exposed to this training in the future and will, thereby, be able to understand a child not merely intuitively, but on safe scientific grounds.

According to our observations there are four main goals of disturbing behavior.⁶ Reading difficulties can be used for one of these four goals. Briefly, these four goals are: (1) attention getting, (2) power, (3) revenge, and (4) display of incompetence. These four goals provide the framework for an understanding of the dynamics of reading difficulties. The child is generally not aware of the use to which he puts his deficiency; but he easily can be made aware of the purpose of his "inability" if this is properly disclosed to him. He then displays a characteristic "Recognition Reflex."⁷

(1) Many children use their "inability to read" to get special *attention* and *service*. Mother has to sit down with them, and feels compelled to "help" the poor child who tries so hard to learn and

just cannot make it. The teacher, too, is induced to give special attention and assistance. But what is more important, as long as the child cannot read, others have to read to him; mother, an older sibling, an aunt or visiting friends of the family. The child would lose all this special service if he ever would learn to read. Many only, or youngest, children fall in this category.

(2) In many cases of retarded readers, a *power contest* exists; they are frequently children of ambitious parents. The more the parents try to force him to learn, the more the child resists. In this way he can defeat their efforts to overpower *him* by showing them *his* power of resistance. This form of behavior can also be found in pupils of ambitious teachers who feel personally defeated by the child's resistance to learn. The masculine ambition of some boys who will not stoop to such unheroic undertakings, displaying their superiority openly through their disinterest, is an expression of their power contest, designed to defeat all the best educational efforts of their teachers.

(3) Not learning to read as a means of *revenge* is not frequent. We have found this motivation in a few children of highly educated and ambitious parents who feel deeply hurt by their child's inability to read. They usually fail to recognize that the child tries in this way to get even with them for being hurt by them. Very often such children may feel rejected because of a highly successful older or younger sibling, to the point that they almost assume they have no place in the family.

(4) By far the most reading difficulties serve goal No. 4. The child flaunts his inability. He is so discouraged that he gives up all hope of ever learning. Very often these cases develop directly from goal No. 1. Originally, the child wanted merely special attention and service, which he succeeded in getting through his inability to read. But then, when he really wanted to learn, it was too late. He became the victim of his own unconscious scheme. He already had developed the conviction that he never will learn to read. He may go through the motions of studying; but his distrust in his own abilities makes it impossible for him to succeed in his half-hearted efforts. So he wishes to avoid them altogether. By showing his complete disinterest, he tries to avoid the inevitable failure. In many cases the source of his discouragement is not merely an over-protective parent, but a very successful sibling. In the competition

between siblings, the success of one usually blocks the efforts of the other; one gives up where the other has been particularly successful. The conviction of his utter inability to learn may induce a child to "play stupid." In such cases the child may appear mentally retarded without actually being so. But even more important is the discouragement of an actually retarded child. Because of his conviction that he cannot learn anything, he does not utilize the limited resources which he has. Even mentally deficient children can learn to read. The greatest obstacle in the teaching of children with low intelligence is not their mental deficiency, but their discouragement, fortified by well-meaning, but equally discouraged parents and teachers. All children with goal No. 4 try, often very successfully, to impress parents and teachers with their "inability" of which they are convinced. Their deficiency is displayed in such a way as to be convincing to others. It requires a considerable amount of faith in the child not to be affected by such obvious evidence of inability.

A teacher who does not recognize the child's goals is prone to react to the provocation in such a manner as to fortify the child's mistaken convictions and mistaken approaches. Only if the teacher recognizes the child's intentions can she successfully *resist* them and re-direct them into more adequate channels. This is true for all four goals. If the child uses his reading difficulties to get special attention and service, he generally succeeds in his efforts. The child who tries to defeat the teacher's pressure to learn, usually provokes the teacher to increase her pressure, which in turn makes the child only more determined to defeat her. This determination is not on the conscious level, but nevertheless effective.

Great danger lies in the fact that the child is able to communicate his deep discouragement to the teacher so that she too becomes convinced of the child's inability. Since this happens so frequently with poor readers, we can well understand the pessimistic attitude of many teachers, which they often valiantly try to conceal. After all, they have a job to perform, and hope against hope that the child may learn. In such a discouraged atmosphere the progress is necessarily much slower than it could be were the teacher equipped to put her entire effort toward counteracting the child's discouragement instead of merely "teaching him to read." In other words, the cart is put before the horse in such endeavors. As the learning

process improves, the child's discouragement may diminish. But how much more could be accomplished if the discouragement were eliminated first! Then the learning process would be much faster and easier.

Too often the reading difficulty is not regarded as a symptom, but as the real problem which has to be tackled. Such a mistaken approach is inevitable as long as the teacher does not understand the child's dynamics and, therefore, does not direct any efforts to change them. In this way the teacher is involved unnecessarily in an uphill struggle. Her own discouragement, defeatism or outright irritation puts an additional handicap in the way of the child's progress. His apprehensions and fears, instead of being relieved, receive additional fuel through the tedious and often tortuous practices imposed upon him. Remedial courses, designed to help the child, only too easily may undermine his spirit, his self-confidence and his self-respect, unless he has the good fortune of having a specially patient and understanding teacher.

The conclusions to be drawn for an adequate corrective approach are self-evident. In many instances, remedial teachers have found for themselves many of the recommendations logically evolving from the recognition of the causal factors. Obviously, remedial teaching is not merely a specific teaching technique. It must be directed toward changing some deeper dynamics of the child, stimulating more fundamental motivations. Instead of merely involving the child in a laborious practice of reading, the teacher has to assume corrective functions of a psychological nature:

1. The teacher as an educator cannot ignore *faulty values* on which the child may operate, like the fallacy of constantly comparing himself with others, of being more concerned with "success" than with learning; such distorted ambition often leads to the assumption of being a failure. He may need a better concept of order and of usefulness, of the benefits of *doing* as contrasted to those of *receiving*. The teacher can and should enhance the child's comprehension of social living and its prerequisites. Such teaching cannot and should not be incidental to the practice of reading, but rather be the *essence* of remedial teaching. This can be achieved through individual and particularly through group discussion, since most of the students of the remedial class share similar deficiencies in their value system.

2. The basis for effective educational endeavors is a *proper inter-personal relationship*. Children in need of special instruction have not been able to establish such a relationship in their families, otherwise they would not be academically and socially deficient. The teacher will be put into the same role which mother, father and other authority figures played in the child's family, unless she makes deliberate efforts to recognize such faulty patterns and to correct them. It is her task to expose the child, perhaps for the first time in his life, to a relationship of equals where he is treated with respect and accepted as he is. Many teachers who are willing and able to do so still may violate the relationship of equals by an attitude of over-protection and over-solicitude. In this way they may lower their *own* status as equals, making the child the dominant figure. The proper relationship requires *mutual respect*. It can be achieved only through firmness *and* kindness. Kindness expresses respect for the child, and firmness the self-respect of the teacher. There are many who are kind but not firm, and many who are firm but not kind, and too many who are both, but not at the same time. The relationship between the teacher and the child requires constant vigilance, sensitivity to any possible deterioration, and the ability to establish and to maintain a relationship of equals.

3. Newly discovered psychodynamics and a new concept of man and his potentialities emerging in the democratic evolution make a reconsideration of our concepts of "reading ability" mandatory. Every individual, including each child, has far greater ability than has been assumed so far. Particularly our young children can accomplish much more than their parents believe. Contrary to a present tendency to postpone the age for reading instruction, the average child may be ready to read long before the present school age. In some cultural groups children learn to read at the age of four. Such examples support the assumption that the early years of childhood are presently wasted, in regard to learning. A very young child can learn a foreign language in a small fraction of the time it takes an older person. We have not even begun to tap all the tremendous learning resources which the young child possesses. We have not adjusted our teaching procedures to the way the young child learns. New methods in teaching the young have to use a functional approach which has practical meaning to the child. Then we may well discover that the proper age for learning to

read is shortly after the child learns to talk. He can just as well learn the symbols of words as he understands the meaning of pictures. He might be able to distinguish the written symbol for water, if he wants some, as soon as he can adequately pronounce it.

4. We cannot wait until experimentation and exploration will firmly establish new educational procedures; at this stage we must revamp our approaches toward teaching those who do not progress sufficiently with the traditional teaching methods. One of the fundamental changes from the traditional methods is the emphasis on motivation. In an authoritarian system, it was sufficient to provide information and then demand acceptance and submission. In a democratic atmosphere children cannot be "made" to do anything; unless they are inclined and stimulated to perform *no* outside force is sufficient to push them into action. For this reason the teacher has the obligation to stimulate proper motivation, so that the child may be willing to learn.

As Beecher⁸ put it: "Children *will not* learn rather than *cannot* learn. The child is opposing and sabotaging efforts at instruction. Corrective efforts must be aimed at his unwillingness to learn, rather than atomizing knowledge to slip into his "empty" head. The mind of such a child is full of resistance and must first be emptied, in contrast to the prevalent opinion that his mind is empty, waiting only to be filled."

Do present techniques in remedial reading provide such stimulation? This is a question which every remedial teacher may ask herself. It is our experience that the present methods are often anything but stimulating. On the contrary, they are often dull, uninspiring, repetitious and mechanical. Unless the interest and enthusiasm of the child is evoked, particularly in children who are used to follow their inclination rather than the demands of a situation, little can be accomplished, despite much work and effort.

The first consideration should be given to the *reading material*. If it has no functional value, it is worthless to the child. He sees no benefit in mere reading unless the material has meaning to him. There is ample opportunity to provide interesting and vital reading material, on any grade level. The names of streets, the content of comic books, of TV programs and other material in which the child is genuinely interested could be used advantageously. Chil-

dren can write their own stories even with a limited vocabulary, and use them for the class. A teacher with imagination can design many devices to make the learning process interesting and stimulating. The implementation of motor activities, of plays and games, can enrich the learning process considerably.

5. Finally, the teacher can directly affect the *emotional blocks* which stifle the child's efforts to learn. Such individualized approach is feasible and possible once the teacher has acquainted herself with the psychodynamics operating in children. Then she can determine in which way the child has been discouraged so that she can offset such early influences. *Encouragement* is the keynote to any *remedial procedure*. Without it, no beneficial results can be achieved.

Remedial reading can be used as a stepping stone for exerting influence on the child's *general development*. It can and almost should take on the aspects of therapy, once the reading difficulty is recognized as a symptom of a deeper emotional disturbance. The group methods, inherent in class teaching, can be greatly utilized for this purpose. Group discussions and the use of written assignments can re-direct the child's goals, reorganize his concepts of himself in the group and in society. In this way the child can be reconditioned in his values and perspectives.

SUMMARY

Reading difficulties, like most academic deficiencies, express an emotional and social maladjustment of the child. The steady increase of reading difficulties in our country indicates certain cultural factors which influence the training of children. Among these, over-ambition lead to easy withdrawal whenever excellence is impossible, over-protection tends to make the child demand service instead of doing things for himself, indulgence and pressure lead to poor working habits, and a general cultural trend stimulates the desire to get as much as possible for as little as possible. Individually, the child with reading difficulties is discouraged, has poor working habits, has not learned to cooperate. Corrective measures should not be limited to the area of deficiency, but must tackle the larger issues and the psychological dynamics underlying it. They must increase the child's belief in himself and his abilities, which generally are impaired in other areas also. One cannot hope to improve one function without considering the total personality of the child.

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TUBERCULOUS MENINGITIS TREATED WITH STREPTOMYCIN. (*British Medical Journal*, London, 1: 192, Jan. 24, 1953). Follow-up of 33 children with tuberculous meningitis treated with streptomycin at the Royal Hospital for Sick Children in Glasgow 4 to 5½ years after the institution of treatment shows that 9 of the 12 survivors are well and leading normal lives in their own homes, while three are grossly disabled. These results might have been better except for the fact that the best method of using streptomycin was still unknown when the treatment was given. The disease was in its early stages when treatment was started in three of the well survivors, and in an intermediate stage in the other six. The cerebrospinal fluid was examined and found cytologically and chemically normal in 11 of the children, but its sugar content was ominously low in one of these (who is disabled). Seven of the well children are making good progress at school and do not exhibit any behavior problems; one is mentally backward but affectionate and happy in disposition; and one is probably of low average intelligence. Meningitis recurred in nine patients: one recovered and is well, two are disabled, and six died of the relapse. Intracranial calcification was detected in the roentgenograms of 8 of the 12 survivors, and in those of 2 who died of relapses; in each case, calcified areas were found near the sella turcica. Intra-thoracic calcification has occurred in 7 of the 10 children with intracranial calcification. The finding of intracranial calcification supports the belief that meningitis is commonly secondary to cortical or meningeal tuberculomas. It does not always indicate healing of the meningitis; tuberculous foci containing live tubercle bacilli have been found in patients showing extensive intracranial calcification.—*Journal A.M.A.*

THERMAL CONTROL IN POLIOMYELITIS

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Observations made in the Willard Parker Hospital, New York City, were announced in a preliminary communication to the American Council of Physical Medicine at Cincinnati on September 9, 1949 with a theoretical introduction as follows: "Proceeding from current theories of destruction of nerve cells by direct invasion of virus, or anoxia of nerve cells due to compression of capillaries by interstitial edema, we may reason that reduced temperature slows the growth of infectious organisms, reduces edema, and reduces tissue metabolism so as to reduce the need for oxygen.¹ We can thus hope for more or less protection of the nerve centers during the few days until the usual systemic immunity reaction terminates this self limited disease. This involves the double task of controlling the fever of severe poliomyelitis and further reducing the local spinal cord temperature as low as possible. It is known that external cold can penetrate deeply into the body and preliminary studies by one of us (F.K.S.) show that cold applied along the spine for twelve hours or longer could reduce the spinal fluid temperature as much as 10° F. below general body temperature." Normal cerebral spinal fluid temperature is 99° F.

This is the first suggestion for giving physiotherapy a leading part in checking the primary infection at the earliest stage, instead of the usual secondary part in correcting disability afterward.*

The technical equipment² with which some of us have become familiar in surgical refrigeration was mentioned in the preliminary communication as follows: "Clinically, we have used the Therm-O-Rite apparatus which circulates fluid at any desired temperature, either hot or cold, through applicators which for the present purpose consist of two layers of fabric with rubber tubes between them. The patient can lie on such an applicator without disturbance either in bed or in a respirator. After establishing normal

*Cf. also Medical Record and Annals, Houston, Texas, 46:281-288, Nov. 1952.

temperature, the large applicator is usually replaced with a narrow 'spinal' applicator, and the 40 degree temperature is perhaps raised to 50 or 55 degrees. Ice bags are a clumsy makeshift for this cooling of the spine (extending well up over the back of the neck) which should continue without interruption for at least three days."

The large applicator for this purpose measured 24 x 32 inches and the "spinal" applicator 4 x 27 inches. Their use involved no change in the customary plan of having the patient lie quiet and supine. But if turning in bed is permitted, the large applicator does not interfere, and the narrow applicator can be secured with adhesive straps along the spine.

CASE REPORTS

Since these observations were begun at a late stage of the epidemic and only cases with well marked fever were included, the series is limited to 17 cases which may be classified in three groups, according to the outcome: I. Fatal Cases; II. Cases With Progression; III. Cases Without Progression.

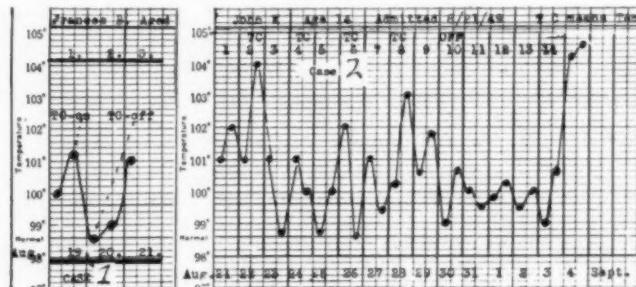
I. FATAL CASES

Case 1. Frances B. (polio, bulbospinal, paralytic.) White female, aged 21 years. Admitted August 19, 1949 with complaint of stiffness of both lower extremities, sore throat, headache and nausea of one week duration. She was unable to walk because of muscle weakness. The admission temperature of 100° F. rose to 101.2° F. and nausea increased. Therefore, refrigeration treatment was begun 9 hours after admission. The temperature fell rapidly and within 7 hours was at 98.6° F. At the same time there was increased paralysis with beginning bulbar signs. Refrigeration was stopped and the patient placed in a respirator. The temperature rose to 101° F. and death occurred the next day.

The treatment being new, was discontinued on account of timidity regarding possible harm. Only further study can decide whether more persistent application may assist in checking the fatal outcome of such a case.

Case 2. John K. (polio, bulbospinal, paralytic, encephalitis.) White male, aged 14 years, admitted August 21, 1949 with com-

plaint of general malaise, stiffness of neck, fever for two days, weakness of left arm one day before admission. Symptoms increased rapidly and the boy was placed in a respirator on August 22. With fever rising steeply above 104° F., refrigeration treatment was begun with the result of an immediate fall of temperature. Progression was evident for the next 24 hours and then remained stationary while cooling was used until August 27. A further rise of temperature was checked by additional brief refrigeration on the 28th and 29th. There were signs of returning muscle power and general improvement so that removal from the respirator became possible on August 29. On September 4 there was a sudden rise of temperature and critical bulbar signs. Refrigeration was not used. Tracheotomy was done, and death occurred the following day. Autopsy verified the diagnosis of encephalitis, pneumonia and extensive cord lesions.



Temperature Chart—Cases 1 and 2

In a state of severe weakness and dangerously rising fever, refrigeration may have temporarily prolonged life in this case. There was certainly improved comfort. The caution with the new treatment is shown by the intermittent use, partly to check tendencies to subnormal temperatures, but chiefly according to a plan of permitting slight fever, resuming refrigeration only when it tended to rise unduly. One theoretical concept is that every resurgence of fever represents renewed activity of the virus, with probably propagation of the infection and further damage even if the temperature is again promptly reduced. The question is open whether a more thorough and persistent maintenance of normal temperature might have prevented the terminal spread of infection.

II. CASES WITH PROGRESSION

Case 3. Frances D. (polio, spinal, paralytic.) White female, aged 9 years. Admitted August 17, 1949 with complaints of headache, fever and pain in the back of the neck and the right leg for 3 days. Weakness of right leg was demonstrable but examinations were difficult because of apprehension. The initial temperature of 102.5° F. fell spontaneously to 100° F. on the second hospital day, then rose to 101° F. at which point refrigeration was started. The temperature was brought as low as 98.6° F. on the third hospital day, and the large applicator tended to produce a sub-normal level. At the same time weakness became apparent in both legs and trunk. Refrigeration was stopped and preparations were made for respirator treatment which proved unnecessary. The temperature remained spontaneously between 99° and 100° F. until the seventh hospital day. There were no further signs of progression, and the patient was transferred to the department of Physical Medicine and Rehabilitation.

Case 4. Loretta B. (polio, bulbospinal, paralytic.) White female, aged 16 years. Admitted August 20, 1949 with complaints of stiff neck and back, fever and weakness of both legs. The onset had been with upper respiratory symptoms on August 16, which subsided, then returned with addition of the above symptoms on August 19. Examination showed moderate weakness throughout both lower extremities. The admission temperature of 103.1° F. rose rapidly to 104° F. Refrigeration then reduced this to normal within 4 hours. The treatment was continued for 49 hours, after which the temperature remained normal. There was some weakness of neck muscles, which had not been apparent on admission. There was no other progression and transfer was made to the department of Physical Medicine and Rehabilitation.

Case 5. Myron F. (polio, bulbospinal, paralytic.) White male, aged 14 years. Admitted August 31, 1949 with complaints of malaise, fever, lethargy and nasal regurgitation for one day. There was a tendency for the fever to rise, bulbar signs increased and symptoms of encephalitis appeared. On the fourth hospital day, the fever rose sharply to 103° F. and refrigeration was begun with the result of a prompt fall of temperature which reached normal the next day. Refrigeration was continued with brief inter-

missions, adjusted so that the rectal temperature should not rise above 100° F. or fall below normal. The treatment was stopped on the seventh hospital day when there was no more febrile tendency. Within this time the signs of encephalitis subsided and the bulbar signs diminished, but moderate weakness developed in the right leg. The patient was transferred to the department of Physical Medicine and Rehabilitation.

Case 6. Judith N. (polio, spinal, paralytic.) White female, aged 7½ years. Admitted September 15, 1949 with complaints of headache, stiff neck and fever for one day. Muscle spasm was present but no marked weakness. Because of the continuous but fluctuating fever of 100.2° to 103.8° F. refrigeration was started on the third hospital day. There was the usual steep temperature fall to normal, after which a moderate or normal level was maintained until the seventh hospital day, when the stopping of refrigeration was not followed by a rise in temperature. A final muscle examination on the twelfth hospital day showed marked weakness in both legs and slight in the right shoulder. Transfer was made to the department of Physical Medicine and Rehabilitation.

Case 7. Marie S. (polio, spinal, paralytic.) White female, aged 7 years. Admitted September 19, 1949 with complaints of headache, fever and stiff neck for 2 days. No muscle weakness was demonstrated. The fever of 101° F. on the first hospital day rose to 103° F. on the second day. Refrigeration was then started and brought the usual steep fall. With intermission of treatment, the fever rose to 101° F. on the third day. It was again controlled and did not return after refrigeration was stopped on the fifth hospital day. During this time the child had some signs of encephalitis, was irritable and hard to manage. The final examination showed weakness of muscle groups in all four extremities and in the trunk. Transfer was made to the department of Physical Medicine and Rehabilitation.

Comments on Cases With Progression. The theory of this treatment does not postulate an immediate total arrest of the infection. Even if it should slow the multiplication or stop the migration of the virus, it can scarcely be expected to save nerve cells which already have been invaded. The treatment was mostly cautious and intermittent and seldom rigidly maintained normal temperatures. It was most thorough in Case 4 and in the still more

threatening condition in Case 5, and both of these records are compatible with a possible limitation of progression as might be expected under the theory. The other cases do not decide whether the influence upon progression was beneficial, harmful or indifferent, or whether more thorough treatment might have improved the results.

III. CASES WITHOUT PROGRESSION

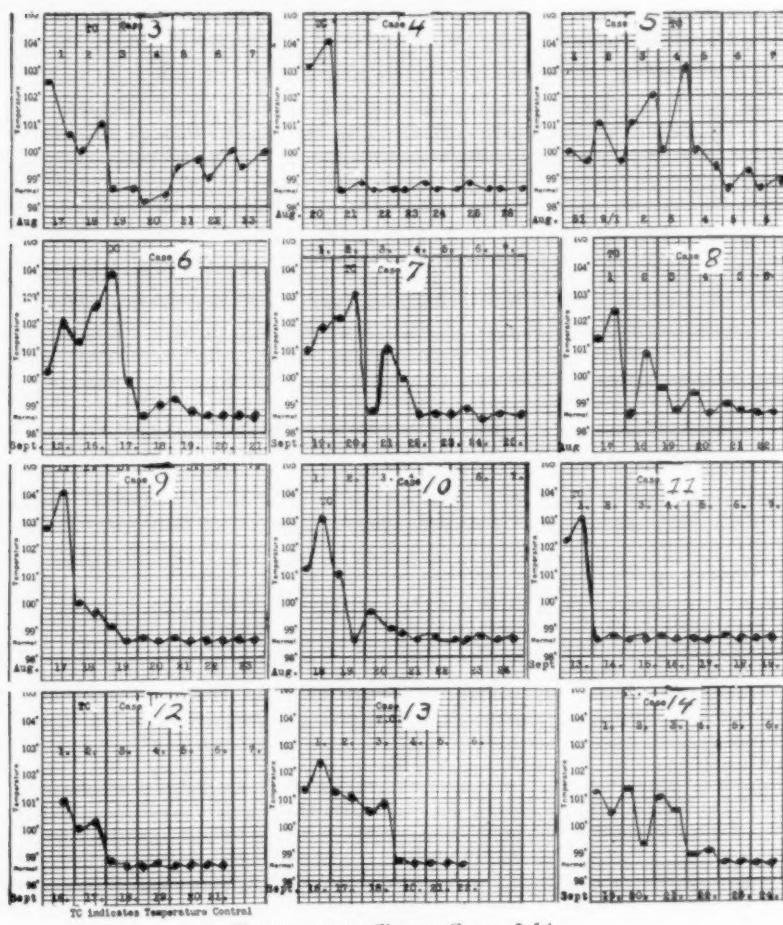
Case 8. Mortimer V. (polio, spinal, paralytic.) White male, aged 32 years. Admitted August 17, 1949 with complaints of fever and headache for four days, neck spasm and weakness of left arm for one day. Soon after admission, because temperature was 102.2° F., refrigeration was instituted and the fever promptly dropped to normal. The cooling was discontinued after eight hours because of the extreme uncooperativeness of the patient in this treatment and in all other matters. Afterward the temperature rose no higher than 100.8° F. and mostly stayed below 100° F. until the sixth day, when the patient was transferred to another hospital. There was no progression of the disease.

Case 9. Shirley S. (polio, nonparalytic.) White female, aged 14 years. Admitted August 17, 1949 with complaints of fever for three days, leg pains and headache for two days, neck and back pain for one day. With fever of 104° F. intermittent refrigeration was started 16 hours after admission. The temperature was reduced gradually to normal within two days and was held there until the fifth hospital day when refrigeration was stopped without return of fever. The patient was sent home on September 1, having developed no muscle weakness or signs of progression.

Case 10. Leah S. (polio, spinal, paralytic.) White female, aged 28 years. Admitted August 18, 1949 with complaints of fever, headache, pain in back of neck and nausea for one week. On the day prior to admission, she developed weakness in both legs. With a temperature of 101.2° F. rising rapidly to 103° F., refrigeration was instituted eight hours after admission and continued with short intermissions until the fourth hospital day. After the usual steep fall, the temperature was kept approximately at normal. There was no progression of weakness and on August 29 the patient was transferred to another hospital.

Case 11. Donald D. (polio, nonparalytic.) Colored male, aged 4 years. Admitted September 13, 1949 with history of irritability,

pains in the feet and inability to walk for about 10 hours prior to admission. Examination showed spasm only and no definite weakness. As the fever of 102.2° F. rose to 103.1° F. refrigeration was started five hours after admission. The temperature dropped to normal within three hours and so remained when the cooling was discontinued after 16 hours. No paralysis; normal flexibility returned and the child was sent home on October 3.



Temperature Charts—Cases 3-14

Case 12. Albert K. (polio, spinal, paralytic.) White male, aged 22 years. Admitted September 16, 1949 with complaints of headache, pain in the back, fever and loss of appetite for four days.

The day prior to admission he noticed weakness of the left leg. The temperature was 101° F. on admission and remained above 100° F. Refrigeration, started on the second hospital day, reduced it promptly to normal and the temperature remained normal when the cooling was discontinued after 24 hours. Evidently in this case the ending of the slight fever was largely spontaneous. There was no progression of weakness. The patient was transferred to the department of Physical Medicine and Rehabilitation.

Case 13. Anna K. (polio, spinal, paralytic.) White female, aged 21 years. Admitted September 16, 1949 with complaints of headache and stiffness of the back for two days. There was no muscle weakness on admission but weakness of both legs developed during the first two days in the hospital. On the third day the weakness was still advancing and, although the fever had fallen irregularly from 102.3° F. on the first day to 100.8° F. on the third day, refrigeration was started on the third day and continued to the fifth day, controlling the rectal temperature to normal. There was no further progression of weakness. Transfer was made to the department of Physical Medicine and Rehabilitation.

Case 14. Arthur G. (polio, spinal, paralytic.) White male, aged 8 years. Admitted September 19, 1949 with complaints of pain in the left leg, headache and fever for two days. On the day before admission he was unable to walk. On admission the weakness of the left leg was marked and on the following day slight weakness appeared in the right leg. Then, with the temperature at 101.3° F., refrigeration was instituted sufficiently for a gradual reduction to normal on the fourth day in the hospital when it was discontinued. After a brief rise on the following day, the temperature remained normal. There was no further progression of weakness. Transfer was made to the department of Physical Medicine and Rehabilitation.

The following three cases had continuous refrigeration. There were no embarrassing effects:

Case 15. L. W., girl, aged 5, had felt tired and indisposed, little interest in what went on about her for one day. The next day, temperature 104° F., sore throat, vomiting, general muscular aches and a complaint of pain in the lower extremities. Walking with assistance to the bathroom, her knees buckled under her and she dropped to the floor. With an effort, she was able to walk,

assisted, to the bed. After that, she had almost complete rest in bed but she continued to complain of pains in the legs, the left more than the right.

That night, the second of the illness, the refrigeration unit was set up and the spinal pad was secured to the patient from the occiput to the coccyx. The skin temperature gradually was reduced under the pad to 50 degrees as that was low enough to relieve the patient of the discomfort in the legs. Within 24 hours the fever had dropped from 104° to 99° F., by mouth. From then on, it was normal or below.

As soon as the fever was reduced, the patient was more alert, appetite returned. The skin temperature under the spinal pad was raised to 60 degrees, as soon as the temperature was low enough to prevent pain in the legs.

After five days of the low skin temperature, the refrigeration unit was removed, at which time there was no fever, no muscle discomfort. No paralysis developed and a check-up one month later, with a muscle testing machine, showed no weakness anywhere.

Case 16. K. M. S., girl 12, visited the home of her aunt for two weeks when the aunt developed polio with paralysis of the lower extremities. Several days later, the child complained of not feeling well, was tired and both arms were weak and painful, and she ran a temperature of 102.5° F. Examination presented in addition a tenderness of the posterior neck muscles. There had been nausea but no vomiting and only a mild degree of pharangitis. Immediately she was given 1600 mg. of the commercial gamma globulin in 10 cc. of solution, even though there was no consensus of favorable opinion, but rather, because if it did no good, the patient would not experience any ill effects. The spinal pad was applied and the skin temperature under the pad reduced. When the temperature reached 55° F., all muscle discomfort was relieved and no further reduction was necessary. Within 12 hours there was no fever and the temperature remained normal throughout the period of treatment although the patient said her left arm ached a little but that the rest of the body was free of pain or weakness. As soon as the patient was afebrile, the skin temperature was raised to 70° F. for two days and then the refrigeration unit was disconnected. Both arms recovered completely. A thorough muscle testing examination, six weeks later, showed no weakness of any part.

Case 17. Mrs. M. M., aged 30, had complained for days of an excruciating pain in the head and neck, fever of 103° F., nausea and frequent vomiting and a generalized muscular weakness. Sedatives, narcotics, antibiotics and chemotherapy generally did not relieve the patient of pain, fever or weakness. Ice bags were applied to back of the neck and to the thoracic and lumbar spines as the means for reducing the temperature of the cerebrospinal fluid. Even though extremely low temperatures do not destroy the virus of acute poliomyelitis, the ten degree reduction of the temperature of the spinal fluid can show beneficial results by a lessening of pain and fever, until the bodily resistance has improved.

Because of a complicating dehydration, the improvement was slower than usual as manifest by a continuance of the severe pain, fever, vomiting and weakness. The ice bag technique seldom can maintain a desired constant temperature unless there is an extra set of bags which may be filled and ready to apply before the used ones are removed from the patient. The thermostatically controlled, electric unit is superior because the temperature is constant.

It was three days before the patient improved enough for her to realize it. It was not until then that the fever and the pain were brought under control. This patient's recovery, though slow, was complete. After two months she was able to take complete care of her children and the home. On examination at this time, though motor power was essentially satisfactory, the patient complained of frequent severe aching in the neck and lower extremities at the end of her usual work day. Her usual work day is arduous. Poliomyelitis did not weaken her for she is doing more physical work than many individuals could do.

Comments on Cases Without Progression. While the arrest of progression cannot be proved to be due to refrigeration, the records at least contribute to the evidence that no serious harm is to be feared.

DISCUSSION

The recognized types of fever are toxic, allergic and nervous. Since the work of Temple Fay, it is known that the hyperpyrexia following central nervous trauma can be effectively and beneficially controlled by refrigeration. Fevers from other causes cannot be thus overcome, and the failure of such attempts by early clinicians was explained by Liebermeister's demonstration³ that in typhoid,

for example, the body's "thermostat" is set at a higher level than normal and resists artificial reduction. Rise of temperature in poliomyelitis is neither defensive nor beneficial. Fever is unfavorable and hyperpyrexia is ominous. This interpretation is strengthened by analogy with another virus infection. Warren, Carpenter and Doak⁵, having noticed that labial herpes is apt to follow any febrile infection, tested the effect of artificial fever produced by simple overheating, and found that every one of their 15 patients developed extensive herpes associated with symptoms of meningoencephalitis. Conversely one of us (F.K.S.) applied ice bags locally to labial herpes for 40 minutes every 3 hours; symptomatic relief was immediate, and within 24 hours the vesicles were reduced to inactive crusts which healed rapidly. The present work adds the information that the fever of poliomyelitis is nervous rather than toxic, and, since there is no resistance by an abnormally elevated "thermostat", reduction is easy, harmless and seemingly beneficial.

Regarding details of method, there is still no positive knowledge whether intermittent or continuous cooling is better; whether the attempt at special reduction of the spinal temperature is helpful; whether the preferred level of body temperature should be normal, or somewhat above or below normal. Since Temple Fay's demonstration, it is known that persons in a fair state of strength tolerate rectal temperatures of 90° F. or lower for several days without serious harm, and there is abundant evidence that the infant organism has a considerably greater tolerance than the adult. With a reduction of general body temperature, plus a local reduction of spinal temperature, there is a possibility of maximal slowing of development of the virus, together with reduction of nervous irritability, edema, circulatory obstruction and tissue devitalization. But while a local reduction of spinal temperature is harmless as far as yet observed, a subnormal body temperature may carry the danger of lowered strength and resistance, including impairment of immunity reactions. Therefore, in the lack of other information, we guarded against subnormal temperature such as are not difficult to produce in poliomyelitis.

There is no comparison with the ordinary hot applications because the principles and purposes are entirely different. Heat treatment is symptomatic, designed to relieve pain and spasm in

areas whose supplying neurones have been attacked by the infection. Such peripheral heating of limited areas may conceivably be compatible with the cooling directed against the central infection, or spasm may be otherwise treated. The cooling is intended for more important purposes, namely, the possible checking of the infection and the certainty of two other benefits.

As previously mentioned, it is impossible that hypothermia should arrest the infection so immediately and decisively in all cases as to furnish a positive demonstration. Also the poor tolerance of monkeys, rats and other experimental animals for prolonged cooling, and the overwhelming and frequently encephalitic character of the infection in them make laboratory tests unpromising. Larger clinical trials, for forming more convincing impressions, are encouraged by the reasonableness of the theory and the observations that such trials are at least harmless.

The following two benefits can be claimed as positive: (a) Hyperpyrexia is known to damage viscera and to be a sufficient cause of death in occasional poliomyelitis cases. The evidence that it is readily controllable may have life-saving value. (b) Bodily metabolism follows the van't Hoff law, increasing about 7 per cent with each Fahrenheit degree of elevation, so that between 102° and 103° F. it is about 25 to 30 per cent above normal and at 105° F. about 50 per cent above normal. The attendant increase of gas exchange imposes an added respiratory burden upon weakened respiratory muscles and especially upon any patient in a respirator. The importance of reducing this burden is obvious.

CONCLUSIONS

1. The fever of poliomyelitis is not of resistant type but can be controlled readily and to any desired degree by the method described.
2. This series of two fatal cases, five with (perhaps modified) progression and 10 with no progression is too small for judging the question of retardation of the specific infection. Theoretical considerations and the evident harmlessness of the method are believed to warrant larger clinical trials.
3. Two benefits are claimed as positive, theoretically and practically: (a) Control of hyperpyrexia, which is always harmful and sometimes fatal. (b) Relief of the respiratory labor created

by the heightened metabolism of fever, which is a burden upon any cases of weakened respiratory muscles and is particularly serious for patients in respiratory apparatus.

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BRONCHIAL ADENOMA IN CHILDREN: A CASE-REPORT OF A 7-YEAR-OLD BOY. (J. Thoracic Surg., 27:295-299, March 1954). A review of the literature prompted by the discovery of a bronchial adenoma in a 7-year-old boy showed only eight previous cases in children under 14 years of age. Two of the eight patients, who ranged in age from 9 to 13 years, were treated by pneumonectomy; bronchoscopic removal of the tumor was carried out in four; and two received no known treatment. The symptoms of bronchial adenoma are generally those of any other type of bronchial obstruction, but, since these tumors present marked vascularity, hemoptysis is especially significant. A definite diagnosis can be established by bronchoscopy and biopsy of the lesion. Adenomas of the bronchi may grow and metastasize as tumors of low-grade malignancy; consequently, they must be regarded as malignant lesions and should be treated by excision of the entire tumor and the surrounding tissues. Lobectomy, or in some instances pneumonectomy, is therefore the treatment of choice for these lesions, because it is the only procedure that can effect a cure.—J.A.M.A.

TREATMENT OF HERPES SIMPLEX, CANCRUM, STOMATITIS*

PRELIMINARY REPORT

HARRY R. LITCHFIELD, M.D.

Brooklyn.

During the last few years small elevated vesicles, single or in groups, were seen occasionally on the inner surface of the lips, cheeks and occasionally on the pharynx. These, it was assumed, were in essence superficial ulcers. Some of these ulcers were covered with a yellowish exudate. The younger children complained of an itching sensation in the area.

Frequently there is slight rise in temperature, about 100 degrees, anorexia, salivation and pain in the area of inflammation. Not infrequently these occurred with the onset of the virus diseases, involving the upper respiratory tract.

True herpetic stomatitis is not a well defined entity. It may occur with or follow herpes of the face, lips or nose. It is oftentimes combined with aphthous stomatitis. Some cases are of infectious origin apparently and recurrence is common.

Herpes simplex, or fever blisters, is an acute inflammatory disorder, characterized by the formation of grouped vesicles, closely set or confluent on an inflammatory base, and attended by a sensation of burning and tension as complained by the younger patients. It occurs in other forms besides facial and buccal, such as herpes genitalis.

The vesicles in all instances are at first pinhead then they coalesce to form flat blebs as noted in our patients. They usually contain a clear serum, which later becomes milky, rarely purulent. These vesicles rupture and usually form brownish crusts which may become detached or form slightly depressed scars. During all this period, these are irritating to the child; as can be expected they fail to take any nourishment, develop anorexia, and may become dehydrated as they refuse liquids. Intact vesicles are rarely seen as they become eroded and form painful superficial ulcers.

Numerous instances have been recorded of the occurrence of herpes simplex on the trunk, fingers or other areas of the body.

*From the Clinics of the East New York Dispensary, Brooklyn, N. Y.

Lipschuetz¹ and others have succeeded in inoculating the rabbit cornea with herpes simplex; it was his belief that the disorder is due to a filterable virus.

CASE REPORTS

A group of 12 children observed with ulcerative lesions in the mouth, pharynx and palate were in various stages. Five had upper respiratory infections, two cases were post-chickenpox and two cases, seen in the skin clinic, were of the recurrent type, with ulceration about the lips. The remainder showed lesions along the gums.

Six of the children had low grade temperatures, the others none. In herpes or stomatitis the length of infection of the cases is ten days to two weeks. But the majority of our clinic cases cleared up much more rapidly.

TREATMENT

The control cases resisted the usual local treatment of local irrigation and syringing with alkaline antiseptic solutions (milk of magnesia—one tablespoonful to a glass of lukewarm water).

To the cases where the ulcers were numerous we applied Dalidyne*, locally. In the interval of two days, and by the third clinic visit, these ulcerations had completely disappeared.

In an infant three months old, who was unable to feed, we used dropper feedings of the formula, and after four days the lesions healed so completely that the infant was able to resume its bottle feedings.

In the remaining five cases of older children, while the lesions were being treated locally with Dalidyne, cool milk and gruel's were advised until the discomfort had disappeared. These all cleared up in a matter of one week.

The use of Dalidyne in a control group of cases showed rapid healing, quick drying. These properties, besides its bacteriocidal and anodyne properties, lend themselves for these specific infections.

This preparation contains ethyl alcohol, benzyl alcohol, quaternary ammonium compound, benzocaine, tannic acid, and analgesics in a specially prepared aromatized base.

*Supplied by Dalin Pharmaceuticals Co., Inc., Bayside, L. I., N. Y.

This preparation is bactericidal to most ordinary gram-positive and gram-negative organisms.

Other means of treatment have been advocated, including radiotherapy. However, the simple local application as herein described has been quite effective.

REFERENCE

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60 Plaza Street.

CONVALESCENT RUBELLA GAMMA GLOBULIN FOR PROPHYLAXIS. (Medical Journal of Australia, Sydney, 1: 182, Feb. 7, 1953). Convalescent rubella gamma globulin has been available for several years to medical practitioners in Victoria. This paper reviews observations in three clinical trials. The globulin was given intramuscularly in doses of 2 to 4 cc. as soon as possible after exposure to the virus, but not later than 72 hours after such exposure. The first study had been reported in part in 1950, but the absence of a control series was a weakness. Furthermore, before any final assessment of the protective value of the serum was possible, it seemed necessary to consider the following factors: 1. Was the primary case really rubella? 2. Was the exposed pregnant woman immune from a previous unrecognized or forgotten attack? 3. Was the duration and intensity of the contact sufficient to have produced rubella if gamma globulin had not been administered? Taking together the cases reviewed by McLorinan in 1950 and those observed since that time, 424 women exposed to rubella received 2 cc. of convalescent rubella gamma globulin by intramuscular injection. Five developed rubella. Similarly, of 388 who received 4 cc. of gamma globulin, four developed rubella. Thus 9 women had rubella of 812 who were said to have been exposed to the disease and who were given gamma globulin. In the second study globulin was administered to 15 of 24 volunteers who had been artificially infected with rubella virus. Under these conditions the globulin appeared to afford no protection. In the third study globulin was used in a controlled study of a natural epidemic of rubella. The results were consistent with partial protection, but the figures were not statistically significant.—*Journal A.M.A.*

PEDIATRICS AT THE TURN OF THE CENTURY

From time to time the Archives, which was the first Children's Journal in the English language, will reprint contributions by the pioneers of the specialty over fifty years ago. It is believed that our readers will be interested in reviewing such early pediatric thought.

CONGENITAL HYPERTROPHIC STENOSIS OF THE PYLORUS*

HEZEKIAH BEARDSLEY, M.D.
New Haven.

A child of Mr. Joel Grannis, a respectable farmer in the town of Southington, in the first week of its infancy, was attacked with a puking, or ejection of the milk, and of every other substance it received into its stomach almost instantaneously, and very little changed. The feces were in small quantity and of an ash color, which continued with little variation till its death. For these complaints a physician was consulted, who treated it as a common case arising from acidity in the prima via; the testaceous powders and other absorbents and correctors of acid acrimony were used for a long time without any apparent benefit. The child, notwithstanding it, continued to eject whatever was received into the stomach, yet seemed otherwise pretty well, and increased in stature nearly in the same proportion as is common to that state of infancy, but more lean, with a pale countenance and a loose and wrinkled skin like that of old people. This, as nearly as I can recollect at this distance of time, was his appearance and situation when I was first called to attend him; he was now about two years old. I was at first inclined to attribute the disorder to a deficiency of the bile and gastric juices, so necessary to digestion and chylification, joined with a morbid relaxation of the stomach, the action of which seemed wholly owing to the weight and pressure of its contents, as aliment

* Note by Professor William Osler. Cautley and Dent in a recent paper (*Lancet*, December 20, 1902) state that the first record of this disease, which is now exciting a good deal of interest, dates back to 1841. The report here given by Dr. Beardsley of a very clearly and accurately described case, is, I think, worth republishing. It appears in the earliest volume of medical transactions issued in this country, entitled "Cases and Observations by the Medical Society of New Haven County in the State of Connecticut," New Haven, J. Meigs, 1788.

Reprinted from ARCHIVES OF PEDIATRICS, 20:355-357, May 1903.

taken in small quantities would often remain on it, till, by the addition of fresh quantities, the whole, or nearly all, was ejected; but his thirst, or some other cause, most commonly occasioned his swallowing such large draughts as to cause an immediate ejection, and oftentimes before the cup was taken from his mouth. It did not appear that he was attended with nausea or sickness at his stomach, but he often complained that he was choked, and of his own accord would introduce his finger or the probang, so as to excite the heaving of the stomach and an ejection of its contents; the use of this instrument was generally necessary if the stomach did not of itself in a few moments, discharge its contents, the choking would in that short space of time become almost intolerable, which by this discharge was entirely removed. In this situation, with very little variation of symptoms he continued till death closed the painful and melancholy scene, when he was about five years of age. He was uncommonly cheerful and active considering his situation. A number of the most respectable medical characters were consulted and a variety of medicines was used to little or no effect. His death, though long expected, was sudden, which I did not learn till the second day after it took place. This late period, the almost intolerable stench, and the impatience of the people who had collected for the funeral prevented so thorough an examination of the body, as might otherwise have been made. On opening the thorax, the esophagus was found greatly distended beyond its usual dimensions in such young subjects; from one end to the other of this tube, between the circular fibres which compose the middle coat, were small vesicles, some of which contained a tablespoonful of a thin fluidlike water, and seemed capable of holding much more. I next examined the stomach, which was unusually large, the coats were about the thickness of a hog's bladder when fresh and distended with air; it contained about a wine pint of a fluid exactly resembling that found in the vesicles before mentioned, and which I supposed to have been received just before his death. The pylorus was invested with a hard compact substance, or schirrosity, which so completely obstructed the passage into the duodenum, as to admit with the greatest difficulty the finest fluid; whether this was the original disorder, or only a consequence, may perhaps be a question. In justice to myself I ought to mention, that I had pronounced a schirrosity

in that part for months before the child's death. On removing the integuments of the abdomen, I was struck with the appearance of the vesica fellis, which was nearly five inches in length and more than one in diameter; it lay transversely across the abdomen, and was bedded into the small intestines, which were sphacelated wherever they came in contact with it; its contents were rather solid than fluid, and resembled flesh in a highly putrid state; its color was that of a very dark green, like the juice of the night-shade berry, and a fluid of the same color exuded through its sphacelated coats. The necessity there was of interring the body that evening, put a stop to any further examination.

I should have been happy, gentlemen, if I had been able to have given you a more particular and accurate description of this very singular case, but the above mentioned circumstances forbade.

ENDOCARDIAL SCLEROSIS: ANATOMOCLINICAL REPORT OF SIX CASES. (*Acta paediat. belg.*, 7:241-262, Nov. 6, 1953). The clinical symptoms are reported of nine children, six aged 2 years or more and three only a few months old, with endocardial sclerosis (endocardial fibroelastosis). This disease is characterized by circulatory insufficiency of more or less sudden onset with dyspnea, tachycardia, cyanosis, and hepatomegaly. The heart volume is considerably increased. All cases but one were fatal; six autopsies were done and the findings reported. It was in no case possible to ascertain the presence of an infectious agent, nor in fact could any cause be discovered. The authors' six cases can be classed among the nearly 300 cases existing in the literature in which necropsies revealed cardiac hypertrophy with endocardial sclerosis; some cases showed essential hypertrophy and some glycogenosis. Symptomatic treatment with digitalis and diuretics yields definite but transitory improvement. Corticotropin was administered to one patient in this series, the only one who was alive at the time of writing, but nothing definite can be said about the efficacy of this treatment. At present, little is known about the disease, and it has a very poor prognosis.—*J.A.M.A.*

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